

User Manual



SHDTU03b-ET100BS

1 pair G.SHDSL LAN Extender



CTC UNION TECHNOLOGIES CO., LTD.

LEGAL

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CISPR PUB.22 Class A COMPLIANCE:

This device complies with EMC directive of the European Community and meets or exceeds the following technical standard. EN 55022 - Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment. This device complies with CISPR Class A.

WARNING:

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

CE NOTICE

Marking by the symbol CE indicates compliance of this equipment to the EMC directive of the European Community. Such marking is indicative that this equipment meets or exceeds the following technical standards: EN 55022:1994/A1:1995/A2:1997 Class A and EN61000-3-2:1995, EN61000-3-3:1995 and EN50082-1:1997

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SHDTU03b-ET100BS

1-Pair G.SHDSL LAN Extender.

User Manual

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This manual supports the following models:

SHDTU03b-ET100BS

This document is the current official release manual. Please check CTC Union's website for any updated manual or contact us by E-mail at info@ctcu.com. Please address any comments for improving this manual or to point out omissions or errors to marketing@ctcu.com. Thank you.

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1. Description

1.1 Product Description

The SHDTU03b-ET100BS, a SHDSL (Single-pair High-bit-rate Digital Subscriber Line) LAN Extender, provides a broadband transmission with bandwidth up to 5.696Mbps over a single pair of copper wires for LAN connection between two local area networks. SHDTU03b-ET100BS provides a console port for users to configure the settings and to monitor the DSL connection status.

SHDTU03b-ET100BS conforms to ITU-T G.991.2, the GSHDSL requirements. Each SHDTU03b-ET100BS can be configured as either STU-C for the central side or STU-R for the remote side. A pair of SHDTU03b-ET100BS offers a cost effective symmetrical broadband solution for bandwidth-hungry applications such as LAN-to-LAN connection, Internet

Features:

- ITU G.991.2 Annex F
- Symmetrical downstream and upstream data rates from 192Kbps to 5.696Mbps
- Auto-Negotiation for 10/100 BaseT
- Auto-MDIX for Auto Ethernet Tx/Rx Swap

1.2 Specification

G.SHDSL line

- Line Coding: 16 TC-PAM or 32 TC-PAM
- Line Rate: 192K bps ~ 5696 Kbps
- Standard: ITU-T G.991.2, Annex F

LAN interface

- Mac Address filtering bridge up to 2K Mac address learning
- Bridge: IEEE 802.1D transport, self-learning

Physical interfaces

- 4 x RJ45 10/100Mbps Ethernet ports
- 1 x RJ-11 port for G.SHDSL.bis connection
- One console port: DB-9 Female
- DC 5 V power input

1.3 Application

Following Figure shows a point to point application for user interface LAN



Figure Ethernet Bridging

1.4 SHDSL system components

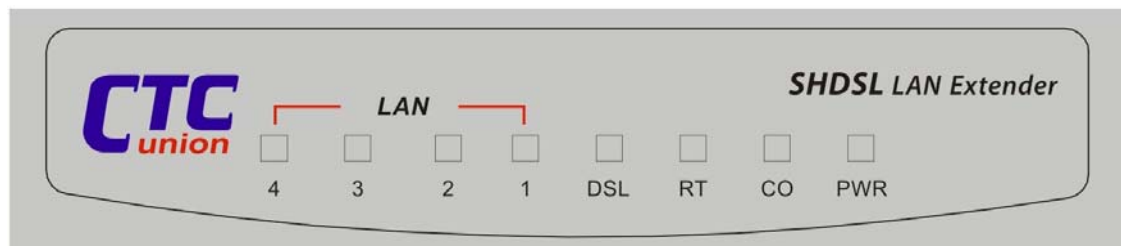
SHDTU03b-ET100BS SHDSL provide SHDTU03b-ET100BS desktop:

SHDTU03b-ET100BS desktop include following components:

- SHDTU03b-ET100BS Desktop

1.5 Front Panel LEDs Indicators

There are eight LED indicators on the front panel of SHDTU03b-ET100BS. They show the statuses of the device.



The functions of LED indicators are described in the following table:

LED	Color	Status	Meaning
PWR	Orange	Steady Off	The device is on. The device is off.
COT	Orange	Steady	The device is configured to COT mode
RT	Orange	Steady	The device is configured to RT mode
DSL	Orange	Steady Blinking Off	The device is Sync Status. The link is synchronizing - this may take several minutes. The device is unplugged or disconnected.
LAN1	Orange	Steady	Link 1 - The LAN connection is successfully established.
LAN2	Orange	Steady	Link 2 - The LAN connection is successfully established.
LAN3	Orange	Steady	Link 3 - The LAN connection is successfully established.
LAN4	Orange	Steady	Link 4 - The LAN connection is successfully established.

1.6 Rear Panel Connectors

The rear panel connectors connecting the device to the LAN and xDSL network are illustrated as below.

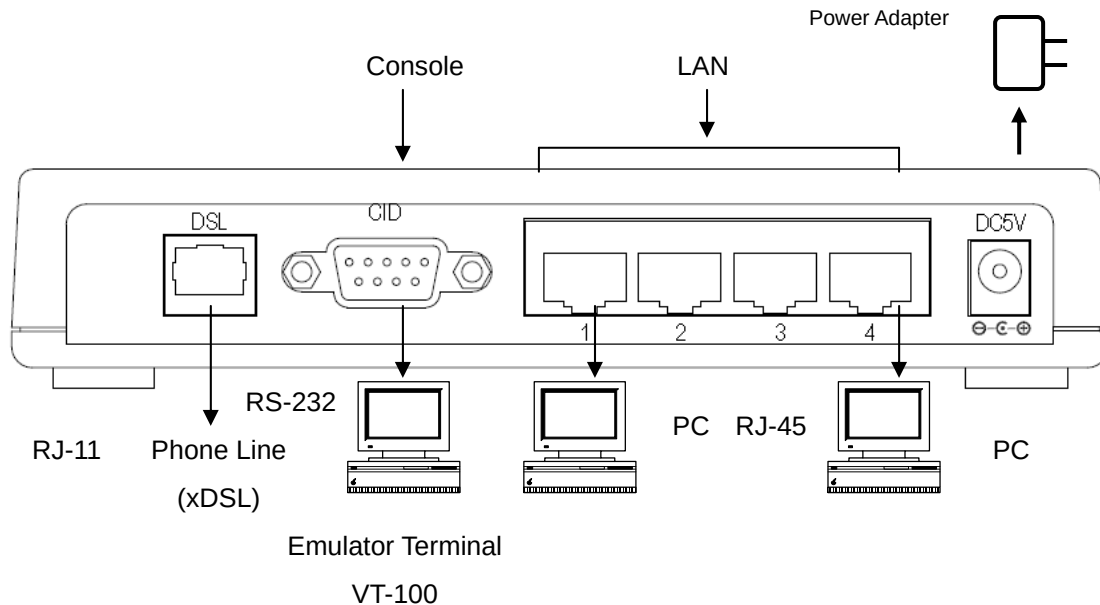


Figure 1 Rear Panel and Installation

LAN Interface characteristic

LAN Interface (RJ-45 port)located in SHDTU03b-ET100BSS rear panel meets to IEEE 802.3 or IEEE 802.3u request and supports 10/100 Base-Tauto test and half/all trouble works model operation, bridge can provide up to 128 MAC address and MAC address filtration function, meets IEEE 802.1d protocol requestment.

RJ-45 wire

Figures separably shows as following :

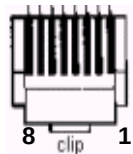


Figure 1.9: RJ-45 pin out

Table1.14: 10/100 Base-Tpin out

Pin NO.	Function	Data Direction	Designation
1	TX Transmitting Data	Toward the LAN network	TX+
2	TX Transmitting Data	Toward the LAN network	TX-
3	RX Receiving Data	Toward the LAN Equipment	RX+
6	RX Receiving Data	Toward the LAN Equipment	RX-

2. Packaging

2.1 Checking Package Contents

SHDTU03b-ET100BSSDesktop is shipped with the following contents:

- One 110/220V power adaptor
- One SHDTU03b-ET100BS User Manual

2.2 Prepare for Installation

Connecting the SHDTU03b-ET100BS

If configured from the Craft port, you are encouraged to use the virtual terminal emulator from Window / Microsoft and set the COM Port of PC to the following communication parameters:

- DTE speed 38.4Kbps
- 8 Data Bit
- Non – Parity Bit
- One Stop Bit
- No Flow Control
- Selection of “VT100” for Terminal Configuration

3. Log On

To access the VT-100 console screen, check that the CID port speed matches the terminal emulation program currently being used. The default value for the CID port is 38.4k bps, 8 data bit, No Parity, 1 stop bit. The VT-100 console uses a blinking cursor to select various menus, sub menus and fields within those menus.

To pop up the console, press the “ Enter “ key several times to display the Log On Screen illustrated in the following screen.

```

\Main
Device Type   Line CNT   Data Rate   Port 1   Port 2   Port 3   Port 4
L: COT        SYNC      4032 kbps   LINK     DOWN     DOWN     DOWN
R: RT         SYNC      4032 kbps   LINK     DOWN     LINK      DOWN
=====      G.SHDSL.bis LAN EXTENDER      =====

                1. Configuration                <DIR>
                2. Status                        <DIR>
                3. Inventory                      <DIR>

-----

1..3]  Select  Item      Enter] Accept      ESC]Escape      SPACE] Screen Refresh

```

Main Screen

Cursor Operation

To select a specific field or navigate the console screen, refer to the table below for further details.

Keyboard Command	Description
Tab	Tabs to previous item.
Space	Refreshes the entire screen.
Esc	Escapes to previous page
1 ...N]	Fields enclosed in brackets [] offer a list of selections.
Enter	Validates the fields selected..

3.1 Menu Tree

Viewing from Main Menu, the second layer “ 1. Configuration, 2.Status and 3. Inventory “ and all its tributary parameters are shown in Figure 3.1.

Figure 3.1: Menu Tree

Main Menu

- >> **1. Configuration**
 - >> **1. Device Type** COT; RT
 - >> **2. Annex** Annex F
 - >> **3. DSL Rate** 3~89
 - >> **4. DSL Mode** Fixed
 - >> **5. LAN Port**
 - >> **1. Auto Negotiation** Disable; Enable
 - >> **2. Speed** 10M; 100M
 - >> **3. Duplex** Half; Full
 - >> **4. Flow control** Eable;Disable
 - >> **5. Packet size** 1518;1522;1536;1784
 - >> **6. VLAN setting**
 - >> **1.VLAN Mode** Unware;Aware
 - >> **2.P-P Segmented Channel** Disable;Enable
 - >> **3.Ingress VID Range Start** 0 - 4095
 - >> **4. Ingress VID Range length** 0 - 4095
 - >> **5.Port 1 Bandwidth value** 1 - 89
 - >> **6.Port 2 Bandwidth value** 1 - 89
 - >> **7.Port 3 Bandwidth value** 1 - 89
 - >> **8.Port 4 Bandwidth value** 1 - 89
 - >> **7. Factory Default**
 - >> **8. Save**
- >> **2. Status**
 - >> **1. Device Type** COT; RT
 - >> **2. Annex** Annex F
 - >> **3. DSL Rate** 64~5696 kbps
 - >> **4. S/N** (0~20dB)
 - >> **5. DSL Status** Idel; SYN; Handshaking
- >> **3. Inventory**
 - >> **1. H/W version**
 - >> **2. S/W version**

3.2 Main Menu

The Main Menu Screen, illustrated below,

\Main						
Device Type	Line CNT	Data Rate	Port 1	Port 2	Port 3	Port 4
L: COT	SYNC	4032 kbps	LINK	DOWN	DOWN	DOWN
R: RT	SYNC	4032 kbps	LINK	DOWN	LINK	DOWN
=====		G.SHDSL.bis LAN EXTENDER			=====	
1. Configuration				<DIR>		
2. Status				<DIR>		
3. Inventory				<DIR>		

3.3 Console Screen Convention

The Console Screen Convention contains five user operating areas.

- Menu Sequence:** The one-line top most area that shows sequence for bringing the menu to the current hierarchy.
- Status/ Alarm message:** This is the two-line area above the double dotted line that provides network and user interface status and alarm message.
- Sub-Menu or Result Display:** This is the area above the single dotted line that provides content of sub-menu or display of performance data and testing result.
- Input field:** The area beneath the dotted line that shows options specific to menu or sub-menu items and allows user to enter value desired.
- Function Keys:** The area right beneath the input field that lists the function keys specific to the operation of the menu currently displayed.

Menu Sequence	{	\Main\ Cfg						
Status Message	{	Device Type	Line CNT	Data Rate	Port 1	Port 2	Port 3	Port 4
		L: COT	SYNC	4032 kbps	LINK	DOWN	DOWN	DOWN
		R: RT	SYNC	4032 kbps	LINK	DOWN	LINK	DOWN
		===== G.SHDSL.bis LAN EXTENDER =====						
Sub-Menu	{	1. Device Type : COT						
Result Display		2. Annex : Annex F						
		3. DSL Rate : 03						
		4. DSL Mode Fixed						
		5. LAN port <DIR>						
		6. VLAN setting <DIR>						
		7. Factory Ddfault <CMD>						
		8. Save <CMD>						
Input Field	}							
Function Key	{	1). COT, 2) RT						
		Input: 1						
		1..6]	Select	Item	Enter]	Accept Item	ESC]	Escape
							SPACE]	Screen Refresh

4. Configuration

This chapter provides instructions on how to access and configure your SHDTU03b-ET100BS, displaying configuration options, restoring to factory default and saving the configuration.

In other words, the provisioning parameters for each SHDSL unit could also only be provided through the CID and SHDTU03b-ET100BS Desktop functioning as STU-C. or as STU-R. In case of STU-R is connected to STU-C successfully then STU-R will download the configuration automatically. It means the configuration of the both units are same parameters except STU-C and STU-R.

The first Item on the Main Menu Screen is “ Configuration “ option. The Configuration Screen below allows you to view, set or make changes to certain specific parameters about the unit in service.

The following Screen allows you to view and change the parameters of SHDTU03b-ET100BS.

\Main\ Cfg						
Device Type	Line CNT	Data Rate	Port 1	Port 2	Port 3	Port 4
L: COT	SYNC	4032 kbps	LINK	DOWN	DOWN	DOWN
R: RT	SYNC	4032 kbps	LINK	DOWN	DOWN	DOWN
===== G.SHDSL.bis LAN EXTENDER =====						
1. Device Type : COT 2. Annex : Annex A 3. DSL Rate : 03 4. DSL Mode Fixed 5. LAN port <DIR> 6. VLAN setting <DIR> 7. Factory Ddfault <CMD> 8. Save <CMD>						

1). COT, 2) RT						
Input: 1						

Table 5.1Configure Parameters Screen Content

Item	Description
1. Device Type	Specifies whether the unit is configured as COT, or RT. Entry: COT; RT
2. Annex	Sets the transmission mode for SHDSL. Entry: Annex F
3. DSL Rate	Specifies data rate for DSL. Data rate could be configured in multiple of 64k. N=3~89.
4.DSL Mode	Sets DSL Mode
5. LAN Port	Configure LAN Port
6.VLAN setting	VLAN setting
7. Factory Default	Sets SHDTU03B-ET100BS to factory default
8. Save	Save the parameters to SHDTU03B-ET100BS

4.1 Configure Device Type

To configure the Device Type , apply the menu selection sequence: **Local >> Configure**. Move cursor to **1. Device Type** and specify whether the unit is configured as **COT**, or **RT**.

4.2 Configure Annex Mode

To configure the Annex Mode , apply the menu selection sequence: **Local >> Configure**. Move cursor to **2. Annex** and specify whether the DSL is configured as **Annex F**.

4.3 Configure DSL Rate

To configure the DSL Rate , apply the menu selection sequence: **Local >> Configure**. Move cursor to **3. DSL Rate** and Specifies data rate for DSL. Data rate could be configured in multiple of 64k. Annex F, N=**3~89**.

4.4 Configure DSL Mode

To configure the DSL Mode , apply the menu selection sequence: **Local >> Configure**. Move cursor to **4. DSL Mode** is Fixed.

4.5 Configure LAN Interface

To access LAN Port, apply the menu selection sequence: **Local >> Configure >> LAN port >>** as shown below.

```

Main\ Cfg\LAN Port
Device Type   Line CNT   Data Rate   Port 1   Port 2   Port 3   Port 4
C:   COT   SYNC   4032 kbps   LINK   DOWN   DOWN   DOWN
R:   RT   SYNC   4032 kbps   LINK   DOWN   DOWN   DOWN
=====
                        G.SHDSL.bis LAN EXTENDER
=====

1. Auto Negotiation           : Disable
2. Speed                      : 100M
3. Duplex                     : Full
4. Flow control               : Enable
5. Packet size                :1518

-----

1). Disable, 2) Enable
Input: 1
1..4]  Select  Item      Enter] Accept          ESC]Escape    SPACE] Screen Refresh

```

The Ethernet interface parameters, described now, are provided in the following table.

Table 5.2: LAN Port Screen Content	
Item	Description
1. Auto Negotitation	Specifies whether the Ethernet interface is being operating in auto-detecting or Manually mode. Entry: Disable; Enable
2. Mode	Specifies the operating speed of LAN port Entry: 10M; 100M
3. Duplex	Specifies whether the Ethernet interface is being operating in Half or Full duplex mode. Entry: Half ; Full
4. 802.3 flow control	Specifies whether the flow control is enabled or not. Entry: Enable ; Disable
5. Packet size	1518;1522;1536;1784

4.6 Configure VLAN setting

To set VLAN, apply the menu selection sequence: **Local >> Configure >> VLAN setting >>** as shown below.

Main\ Cfg\ LAN Port							
Device Type	Line CNT	Data Rate	Port 1	Port 2	Port 3	Port 4	
C: COT	SYNC	4032 kbps	LINK	DOWN	DOWN	DOWN	
R: RT	SYNC	4032 kbps	LINK	DOWN	DOWN	DOWN	
===== G.SHDSL.bis LAN EXTENDER =====							
1. VLAN Mode				: Unaware			
2. P-P Segmented Channel				: Disable			
3. Ingress VID Range Start				: 0			
4. Ingress VID Range length				: 0			
5. Port 1 Bandwidth value				:0Kbps			
6. Port 2 Bandwidth value				:0Kbps			
7. Port 3 Bandwidth value				:0Kbps			
8. Port 4 Bandwidth value				:0Kbps			

1). Unaware, 2) Aware							
Input: 1							
1..4]	Select	Item	Enter]	Accept	ESC]	Escape	SPACE] Screen Refresh

4.7 Factory Default setting

Default configuration setup is provided. To default the setting, follow the steps described below. The “ Local\Cfg.” screen appears when the Local\Configuration menu sequence is entered. Position the cursor at option 5 “ Factory Default “ of Configuration menu and press “ Enter “ to restore setting to factory default. After setting default value, the system prompts you for a “ Set default succeed ! Press any key to continue..” message displayed in reverse video.

4.8 Save configuration

Regardless of STU-C or STU-R, SHDTU03b-ET100BSS is provided with 2M byte non-volatile flash memory which stores all provisioning parameters of the unit.

When change are made to the selection option through the Configuration\Save sequence, the changes must be saved to take effect.

5. Performance Monitoring

This chapter provides information on the display the status of SHDTU03b-ET100BS that include the the data rate of DSL, current signal-to-noise ration (SNR), the status of DSL and displaying the total number of received/transmitted Packets for each LAN port, follow the menu entering sequence: **Local >>> Statue**

Main\ Status							
Device Type	Line CNT	Data Rate	Port 1	Port 2	Port 3	Port 4	
C: COT	SYNC	4032 kbps	LINK	DOWN	DOWN	DOWN	
R: RT	SYNC	4032 kbps	LINK	DOWN	DOWN	DOWN	
===== G.SHDSL.bis LAN EXTENDER =====							
1. Device Type				: COT			
2. Annex				: Annex A			
3. DSL Rate				: 4032Kbps			
4. S/N				: 30			
5. DSL status				: Synch			
6. LAN 1 Rx/Tx packet				: 0		: 0	
7 LAN 2 Rx/Tx packet				: 0		: 0	
8 LAN 3 Rx/Tx packet				: 0		: 0	
9 LAN 4 Rx/Tx packet				: 0		: 0	

1..5] Select Item Enter] Accept ESC]Escape SPACE] Screen Refresh							

Table 6.1: Display Status Screen Content

Item	Description
1. Device Type	Displays the Device Type which you set SHDTU03B-ET100BS
2. Annex	Displays the Annex mode which you set SHDTU03B-ET100BS
3. DSL Rate	Displays the DSL Rate.
4. S/N	Displays the current signal-to-noise ration (SNR)
5. DSL Status	Display the current DSL Status.
6. LAN 1 Rx/Tx packet	Displays the total number of received/transmitted Packets through the LAN port 1
7. LAN 2 Rx/Tx packet	Displays the total number of received/transmitted Packets through the LAN port 2
8. LAN 3 Rx/Tx packet	Displays the total number of received/transmitted Packets through the LAN port 3
9. LAN 4 Rx/Tx packet	Displays the total number of received/transmitted Packets through the LAN port 4

6. Inventory

This chapter provides identity information for the unit's services and revision state as illustrated in the figure below.. To access this maintenance service, select “ 3. Inventory “ of main menu and hit “ Enter “ key to take effect.

```

Main\ Inventory
Device Type  Line CNT    Data Rate    Port 1      Port 2      Port 3      Port 4
C:  COT      SYNC        4032 kbps   LINK        DOWN        DOWN        DOWN
R:  RT       SYNC        4032 kbps   LINK        DOWN        DOWN        DOWN
=====
                        G.SHDSL.bis LAN EXTENDER
=====

      1. H/W version                      : 10
      2. S/W version                      : 08
      3. DSL version                      : 06.00.02

-----

1..3]  Select  Item      Enter] Accept      ESC]Escape      SPACE] Screen Refresh

```

Item	Description
1 S/W Version	: Displays the software version currently used for the unit.
2 H/W Version	: Displays the hardware version of circuitry.
3 DSL Vserion	: Displays the DSL version of circuitry.



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